

LAUREA UNIVERSITY OF APPLIED SCIENCES

Degree Programme in Business Information Technology (Laurea Leppävaara, tiko), NTA13KN

Learning concept at Laurea

Universities of applied sciences have three tasks set by law: research and development, regional development, and pedagogy. The effective integration of these three tasks has been seen as one of the keys to the successful completion of Laurea's statutory duties. The aim for Laurea is to produce competent graduates who become research-oriented developers of their work and their fields. A further aim is to develop and renew labour market competence through research and to produce innovations that make use of multidisciplinary competence to have an impact on our surroundings.

Laurea's learning concept is embodied in the Learning by Developing model, which has been rewarded by the Finnish Higher Education Evaluation Council. The objective of learning is competence, which is visible as new ways and means of working, and which allows for renewal of the labour market and the field. Learning by Developing takes place in workplace-oriented projects in which students, lecturers, workplace experts and customers work together to develop innovative solutions.

Students are seen as partners who, as their competence develops, are able to take on increasing responsibility and make use of their creativity to complete research and development tasks. Students acquire competence in learning environments comprising diverse workshops and labs. Professional competence is constructed out of the integrated combination of empirical data, a deep understanding of it, and skills in doing and handling situations. Working together to build knowledge-based skills leads to competence that allows students to manage diverse situations in the constantly changing world of work.

Learning at Laurea progresses through an orientation of skills. Scientific data is significant as a tool. Learning directs students to process knowledge and to select ethically significant knowledge that can be utilised and applied in development projects that correspond to their degrees. Laurea places importance on ensuring that students grow into skilled experts who can renew the labour market. Workplace-oriented development projects as learning environments allow for genuine learning, the construction of partnership networks, the application of meaningful experiences and the development of creativity and research orientation. In the work-oriented development projects, individuals and the target community develop their competence together. In addition, they generate new knowledge for developing and reforming the labour market.

Learning environments

The aim of the learning environment is to facilitate the achievement of learning outcomes while supporting the generation and development of new competence. Laurea's learning environments utilise internal and external networks and are in constant interaction with the workplace. Regional influence increases through communities and the networks that they form. Students use projects to learn the basics of networking, social skills and communication with experts in the field. Students grow into developers by carrying out development tasks and by interacting in competence networks.

Practical applications of learning environments include initiatives and projects that form innovation environments for the community, as well as various operating spaces designed for learning and development, competence hubs and development labs.

The student's role and responsibility in learning

In Laurea's work-oriented research and development projects, the concept of partnership implies cooperation between teachers, experts from the labour market and students. The cooperation is based on responsible commitment to the development project. Studying at Laurea requires critical thinking, problem-solving skills, self-directiveness, a proactive attitude and cooperation skills from students. The studies place a focus on an independent attitude. In development projects, all participants are seen as learners, because the projects aim to produce change and generate something new. Partnership also means mutual respect and appreciation for diverse skills. The progress of the development project requires sharing competence and building new competence out of different areas of expertise. Students participate as partners who build their competence by obtaining new tools and by taking part in various research and development initiatives.

The teacher's role at Laurea

The teacher's role in development projects can be described as that of an expert, a participant and a pedagogical leader. The teacher cannot transfer competence to students but guides the student's learning process. Depending on their roles, Laurea's teachers are both researchers and developers, influencers in regional development, and pedagogues. Teachers who work as researchers publish reports that demonstrate the effectiveness of development projects as reformers and developers of competence in the labour market. As a developer, a teacher is responsible for ensuring the progress of a development project.

Structure of the curriculum

Laurea's curricula are based on themes and study units. A theme refers to a wider competence area that typically requires that a student master several study units within the subject area. The contents of the themes and study units cover the core vocational competence in the field. Annual themes form an umbrella for studies from the perspective of increased professional growth. The curriculum contains the nationally defined generic competences (see Table 1) as part of the objectives set for the themes or study units. Mastering the generic competences ensures vocational education that meets the requirements set for the level to be obtained at universities of applied sciences, and mastering the themes builds competence needed in working life.

Table 1. National generic Competences (Arene 2010)

Generic competences	Description of the competence, bachelor level
LEARNING COMPETENCE	• is able to self-evaluate and develop one's competence and learning style orientation • is able to retrieve and analyze information and evaluate it critically • is capable of taking responsibility for collaborative learning and sharing knowledge in teams
ETHICAL COMPETENCE	• is able to take responsibility for one's own actions and for the consequences of these actions • is able to work according to the ethical principles of the subject field • is able to take other people into account in one's actions • is able to apply the principles of equality • is able to apply the principles of sustainable development • is capable of social influencing using one's know-how and based on ethical values
WORKING COMMUNITY COMPETENCE	• is able to operate as a member of a work community • is able to operate in communicative and interactive situations in working life • is able to utilize information and communications technology in one's subject field • knows the working life in one's subject field and is able to create personal contacts in working life and to operate in professional networks • is capable of decision making in unpredicted situations • is able to apply the principles of organizational management and leadership in working life and has abilities for supervision tasks • possesses entrepreneurial skills
INNOVATION COMPETENCE	

	• is able to conduct research, development and innovation projects applying the existing knowledge and methods of the field • is able to work in projects • is capable of creative problem solving and development of working methods • is able to find customer-oriented, sustainable and profitable solutions
INTERNATIONALIZATION COMPETENCE	• possesses communicative competence necessary for one's work and for professional development in the subject field • is able to operate in a multicultural environment • takes into account the effects of and opportunities for internationalization development in one's own field

Competence evaluation

Competence evaluation is based on the objectives described in the curriculum. These objectives define the requirements that students have to meet to achieve their degree titles. Competence evaluation shows how well the set objectives have been met. On the one hand, competence is seen as knowledge, skills and values, and on the other hand, as experience. Evaluation through development projects looks at an individual's and the project community's learning, the progress and significance of different processes, and the results achieved. Study units are evaluated on a numerical scale of 0 to 5 or on a pass/fail (H/O) basis. The evaluations apply criteria developed for evaluating the competence of students at the beginning of their studies and at graduation (see Table 2). The evaluation criteria for each study unit are given in the study unit's syllabus.

Table 2. Evaluation criteria for initial stage and graduation stage students

BACHELOR'S DEGREE	INITIAL STAGE STUDENTS	GRADUATION STAGE STUDENTS
EXCELLENT grade 5 Students are able to:	• Apply professional concepts expertly. • Comply with occupational safety instructions responsibly and independently. • Justify activities using research knowledge. • Work independently and take initiatives in line with objectives. Operations are often flexible, systematic, development-oriented, creative and active. • Select the appropriate techniques and models for activities, and justify the choices. • Act in customer-oriented ways and according to the situation. • Promote group activities. • Able to critically apply ethical principles in the subject field in one's conduct and tasks.	• Apply professional concepts expertly and extensively, and manage the big picture. • Develop occupational safety of their operating environment. • Develop operating methods by comparing, combining and selecting research knowledge. • Work independently and innovatively in line with objectives. Activities are mostly creative, focused on developing the workplace and distinctly professional. • Select, combine and develop appropriate techniques and models for activities. • Take initiatives and act responsibly in customer relations, and understand the meaning of customer relationships for the big picture. • Develop and renew activities of

		multidisciplinary teams. • Critically apply ethical principles in the subject field in complex and unanticipated situations.
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BACHELOR'S DEGREE	INITIAL STAGE STUDENTS	GRADUATION STAGE STUDENTS
GOOD grade 3 Students are able to:	• Apply professional concepts systematically. • Apply occupational safety instructions in their activities. • Justify, compare and analyse their activities using general guidelines. • Able to cope independently in different tasks in each operating environment. • Apply acquired techniques and models diversely. • Act professionally in customer situations. • Work in a group in line with objectives. • Justify their activities in accordance with ethical principles.	• Apply professional concepts expertly. • Take care of occupational safety for themselves and the work community, and perceive development objects. • Select methods of operation in accordance with research knowledge and guidelines. • Work systematically and critically in line with objectives in complex situations. Operations are often flexible, systematic, creative and active. • Select the appropriate techniques and models for activities, and justify the choices. • Prioritise and maintain customer relationships. • Promote group activities. • Critically apply ethical principles in the subject field in one's conduct and tasks.

BACHELOR'S DEGREE	INITIAL STAGE STUDENTS	GRADUATION STAGE STUDENTS
SATISFACTORY grade 1 Students are able to:	• Apply most important/individual and appropriate professional concepts, and indicate their familiarity with the knowledge base. • Act safely, although activities are often schematic/ experimental/ fumbling/ self-involved. • Comply with rules and instructions, and justify their activities using provided instructions. • Act appropriately under guidance. • Use acquired techniques and models. • Take customers into account in their actions. • Act as group members. • Act in accordance with ethical	• Apply professional concepts systematically. • Comply with occupational safety instructions responsibly and independently. • Justify and analyse their activities using general guidelines and in accordance with evidence-based information. • Act professionally and responsibly in unanticipated customer and problem situations. • Work independently in different tasks in each operating environment. • Apply acquired techniques and models diversely • Act in customer-oriented ways

	principles.	and according to the situation, and understand customer needs. • Work in a group in line with objectives. • Act and justify their activities in accordance with ethical principles.
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Degree programme's quality evaluation and development

The quality of Laurea's operations is monitored and developed with the quality assurance system (picture 1.). The aim of the quality assurance system is e.g. to extensively guarantee the quality of education and of other activities, systematically produce quality-related data for the development of the operations and to promote recognition of insufficient quality.

Processes have been described as support for Laurea's basic operations. The core process is the Learning by Developing process, its implementation is supported by the Education process, the Strategy and Management process and the HR process.

Strategy Implementation Plan, where the critical success factors and their indicators have been defined, functions as a tool for monitoring and evaluating operations. Central indicators for a degree programme's quality assurance are e.g. progress of studies, learning through research and development, dropout rate, completion of studies and development of competence in graduating students. The results according to the indicators are discussed annually and based on them the appropriate measures for the development of operations are defined.

Besides the data related to critical success factor indicators, Laurea also collects other feedback and evaluation data in order to develop the quality of a degree programme. The degree programme specific curriculum is evaluated annually. In addition to personnel also students and working life representatives take part in the evaluation.

Students' most important channel of evaluating and developing operations is the student feedback system. Student feedback system includes feedback questionnaires that measure the quality of education, student's professional growth and student wellbeing as well as immediate feedback. Collecting feedback data, its systematic processing with students and personnel as well as versatile exploitation of the data enable continuous quality development in education.

Students are actively involved in different development teams both on Laurea and local unit levels. Consultation meetings between student union LAUREAMKO and the steering group are organised regularly. The aim of the meetings is to take into account the students' points of view in the development of the operations. The consultation meetings are held both on Laurea and local unit levels. Student members participate also in Laurea's internal audits which are organised once an academic year. Through the internal audits students contribute to the quality development of education and other operations.



Laureas curriculum as a part of the European Higher Education Area

Finnish higher education institutions have reformed their curricula in accordance with the creation of the European Higher Education Area, i.e., the Bologna Process. The EU's strategic objectives regarding education also guide education in Finland. The Bologna Process covers a total 46 of countries, including some outside the EU. The aim of the Bologna Process is to establish a consistent, compatible and attractive Higher Education Area in Europe by 2010.

To promote the adoption of internationally understandable, comparable degrees, the process has created a system based on two main cycles: undergraduate (Bachelor level) and graduate (Master level). Finland has adapted its degree structure to align it with this European objective. In universities of applied sciences, the two-cycle degree is implemented in a way that students obtain a first-cycle (Bachelor's) degree, after which they have the opportunity to obtain a Master's degree. The requirement for access to Master's training is an undergraduate degree plus three years' work experience. The long-term objective is that approximately 20 per cent of Bachelor's graduates will take a Master's degree.

Finnish universities of applied sciences adopted ECTS (European Credit Transfer and Accumulation System) credits in 2005. In the ECTS, one academic year equals 60 credits. The ECTS is a student-centric system. It is based on the student workload needed to achieve the targets set for each degree programme.

The curricula describe the learning outcomes and competence. From the point of view of promoting international mobility, curricula must be internationally understandable. The aim of standardising the structures and learning targets of degrees is to improve the conditions for mobility within and between higher education institutions during the studies, and also in the workplace after graduation. In terms of the recognition and comparability of degrees taken in different countries, it is important to link learning targets to concrete competence requirements and definitions in the labour market.

Laurea's competence-based curriculum takes into account the demands of the Common European Framework. Studies are accumulated in the form of credits, and study units form larger modules. Competence is defined in terms of the students' learning outcomes. Currently resources are being directed towards further enhancing the ability of the curriculum implementations to generate new competence and innovations for Laurea's operating environment.

Sources:

The Bologna Process

<http://www.minedu.fi/OPM/Koulutus/artikkelit/bologna/index.html>

Global challenges and sustainable development in the curricula

The activities of the higher education institutions are based on responsibility, sustainable development and understanding and appreciating diversity within the higher education community.

A suggested measure of the Strategy for the Internationalisation of Higher Education Institutions is that the higher education institutions will increase education and research cooperation based on national and international networking in order to contribute to the attainment of the goals of the UN Decade of Education for Sustainable Development 2005-2014. Laurea's curricula will be developed according to the Strategy for the Internationalisation of Higher Education Institutions 2009-2015. Out of Laurea values sense of community and social responsibility represent these perspectives most clearly. Moreover, ethical competence of the generic competences of university of applied sciences degrees also means the ability to apply the principles of sustainable development in one's own work. Functioning in the globalising world requires the higher education institutions to critically consider the ethicality of their operational principles.

The goal is that all Finnish degree programmes have at least 30 cr. of studies in foreign language in their curricula. The local units proceed towards this goal gradually. In some degree programmes the goal has already been reached. The goal is also to produce competence that enables participating in solving global problems and building activities on an ethically sustainable foundation.

Source: <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2009/liitteet/opm23.pdf?lang=fi>

		1. year	2. year	3. year	4. year
OP	STUDIES	30	60	60	60
A017	INITIATION OF PROFESSIONAL GROWTH				
A0168	Developing an ICT expert	5			
A0181	Integration in the Global ICT Field	5			
A0197	Professional Communication in English		5		
A0161	Methods and Tools for Information System Development	10			
A0162	Designing ICT Systems		5		
00101	Data Network Architecture	10			
A0116	Global data networks		5		
A0117	Data network project		5		
A0165	Business Operations and Environments		10		
A018	DEVELOPMENT OF CORE COMPETENCES IN THE FIELD				
A0163	Implementing ICT Systems		10		
A0001	Designing and implementing a user interface			5	
A0102	Managing Information Security			5	
A0111	Managing Information Security				
A0104	Information Security Technologies			5	
A0112	Information Security Technologies				
A0106	Information Security Development Project I			5	
A0113	Information Security Development Project I				
A0167	Managing Business Performance			10	
A0166	Leadership skills		5		
A0153	Corporate Social Responsibility		5		
A0202	Swedish in the ICT field		5		
00634	Oral skills in Swedish		0		
00635	Written skills in Swedish		0		
A0198	Organisational Communication		5		
A019	DEEPENING PROFESSIONAL COMPETENCE				
A0132	Creating Innovation through Service Design			10	
A0013	Protecting Critical Infrastructure			5	
A0108	Information Security Development Project II			5	
A0119	Information Security Development Project II			5	
A0142	Job placement in Information and Communication Technology I			15	
A020	WORKPLACE DEVELOPMENT AND RENEWAL				
A0143	Job placement in Information and Communication Technology II			15	
00043	Thesis			15	
047	LAUREA'S COMMON STUDIES				
00202	Initial Test in English Skills	0			
00203	Initial Test in Swedish Skills	0			
01261	Preparatory Studies in English	5			
01260	Preparatory Studies in Swedish	5			

00636	Written skills in Finnish	0			
00637	Oral skills in Finnish	0			
125	ELECTIVE STUDIES				
		30	60	60	60

A017 INITIATION OF PROFESSIONAL GROWTH, 60 cr

Description:

Opiskelija osaa työelämälähtöisen tutkivan toiminnan perusteet, ennakoivan, tutkivan ja kehittävän työtavan sekä alan tarpeelliset työmenetelmät ja työkalut. Opiskelija suorittaa toisen kotimaisen kielen virkamiestutkinnon.

The student will be able to:

- hahmottaa itsensä kehittämisen tavoitteita ja valita kehittämisen kohteita
- luoda henkilökohtaisen oppimisen tavoitteet ja suunnitelmat
- hahmottaa ja arvioida alan osaamista ennakoivan tutkimuksen avulla
- luoda sisältöjä ja hahmottaa käsitteistöä englanninkielisestä aineistosta
- toimia sosiaalisessa arvoverkostossa ja osaamista rikastavassa yhteisössä
- havaita uusien ratkaisujen ja palvelujen merkityksiä menestymisen edellytyksinä
- sitoutua ja motivoitua vaikuttavaan toimintaan työyhteisössä ja toimialueen arvoverkostossa
- tarpeelliset työmenetelmät ja työvälineet
- perustella asiat kirjallisesti
- toimia työyhteisössä ruotsin kielellä

Content:

Teeman opintojaksot muodostavat kehittämisen kokonaisuuden, jonka lähtökohdat määräytyvät opiskelijan omista lähtökohdista ja alalla menestymisen edellytyksistä. Alalla tarvittavan ydinosaamisen ja tulevaisuuden tutkimuksen avulla hahmotetaan tärkeitä kehittämiskohteita ja muodostetaan kestävä pohja motivoitumiselle ja kehittäjäksi oppimiselle. Opintojaksoissa tarkastelunäkökulmana on osaamisen yhdistäminen ja osaamisen tuottaminen arvoverkostoon. Opintojaksot kiinnittävät opiskelijan valitseman oppimisen kohteellisuuden, toiminnan ja motivaation. Osa opinnoista toteutetaan ruotsinkielisenä, mikä tuottaa toisen kotimaisen kielen virkamiestutkinnon.

Learning process:

Teema on aloitusteema ja sijoittuu ammatillisen kasvun alkuun ensimmäiseen opintovuoden aloitukseen. Oppijan kehittämisosaaminen ja motivaatio ilmenevät yhteisöllisenä tutkivana ja kehittävänä työtapana. Oppimisprosessin lähtökohta on alan- ja alueen kehittäminen sekä toimiminen arvoverkostossa. Opiskelijan omat tavoitteet ja kehittämisen kohteet laaditaan henkilökohtaiseksi opintosuunnitelmaksi.

A0168 Developing an ICT expert, 5 cr

A0181 Integration in the Global ICT Field, 5 cr

The student is able to:

- outline the significance of computing technology, the Internet and the World Wide Web in the modern global business
- explain how and to what extent ICT has changed various application domains
- initiate life-long learning and continued development as an ICT professional
- define, choose and evaluate personal competence development objects and targets
- implement a personal study plan
- work in cross-cultural teams and environment
- promote interaction and cooperation in working environment

Contents of the study unit:

- Core competences of the computing, information technology, information systems and ICT
- Computers, the Internet and the World Wide Web, wired and wireless communication, types of business applications
- Global competence needs in the ICT field
- Cross-cultural competences in multicultural teams
- LbD as working and studying model in Laurea
- Personal study plans based on student's own and regional competence analysis

Study unit description:

The competence gained in the study unit forms the basis and integration process of student into the global ICT field. The students apply the value of their own competence as a success factor and enabler. The study unit further describes the influence and importance of new competence in a multicultural value network and in regional development. The study incorporates the Finnish and the international ICT degree programme students.

A0197 Professional Communication in English, 5 cr**The student is able to:**

- knows how to use basic business terminology in writing and speaking
- is able to produce key business messages (formal and informal)
- knows how to deliver effective presentations
- is able to work effectively in a team
- understands the basics of intercultural communication

Contents of the study unit:

- basic business terminology in English
- business writing
- presentation practice
- international job application process
- meetings and negotiations

Study unit description:

This study unit provides an introduction to the main areas of professional communication in English with a focus on developing business vocabulary, writing skills and spoken communication in the context of international presentations, meetings and negotiations

A0161 Methods and Tools for Information System Development, 10 cr**The student is able to:**

- jäsentää tietojärjestelmän rakenteen ja toimintaympäristön
- jäsentää tietojärjestelmän kehittämis-, käyttöönotto- ja ylläpitoprosessin
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Contents of the study unit:

- tietojärjestelmäarkkitehtuuri
- tietojärjestelmän kehittämisprosessit ja kuvaustavat
- projektityöskentely ja työvälineet
- ohjelmointikielten peruseräpäätteet
- ohjelmistoympäristöt
- ohjelmien laadinnan harjoittelu

Study unit description:

Opintojaksossa opiskelija saa yleiskuvan tietojärjestelmien kehittämisestä, käyttöönotosta ja ylläpidosta sekä perusvalmiudet ohjelmien toteutukseen ja tietokantojen käsittelyyn.

Previous studies:

Ei ole.

A0162 Designing ICT Systems, 5 cr**The student is able to:**

- hankkia kehittämiskohteeseen tarvittavaa uusinta tietoa kehittämismahdollisuuksista
- jäsentää järjestelmän rakentamisprosessin ja sen sovittamisen kehittämiskohteeseen
- määrittää järjestelmän kehittämisprojektin

- rakentaa järjestelmää muiden toimijoiden kanssa
- jäsentää liiketoimintaprosessin ja käyttäjän roolin prosessissa
- mallintaa ja kuvata järjestelmän toiminnan ja tietorakenteet

Contents of the study unit:

- järjestelmän rakentamisprosessi
- tietojärjestelmäprojektin suunnittelu
- vuorovaikutus kehittämissä
- liiketoimintaprosessi ja asiakkaan rooli
- tietojärjestelmän toiminnan ja käyttöliittymän alustava mallintaminen ja kuvaaminen
- ohjelmointi

Study unit description:

Opintojaksossa luodaan valmius tietojärjestelmän vaatimusmäärittelyyn sekä sen perusteella tapahtuvaan järjestelmän ja tietorakenteen määrittelyyn ja suunnitteluun.

Previous studies:

Tietojärjestelmän kehittämisen menetelmät ja välineet -opintojakso tai vastaavat tiedot.

00101 Data Network Architecture, 10 cr

The student is able to:

- examine network architectures as a whole and analyse their functionality
- know the theories and concepts of LANs, WANs and WLANs
- describe and define operation and active equipment of a LAN
- design network solutions for a company's operations
- justify solutions and purchases related to data networks
- work responsibly in a company's data network
- define and implement service and network system platforms

Contents of the study unit:

- developing a data network and creating or selecting a network architecture
- assessing a data network architecture, determining its requirements and evaluating its performance
- interaction in development work
- data network design and implementation process
- describing and modelling data networks
- planning and implementing a network system initiative or project
- future network architectures and key technologies

Study unit description:

The study unit provides skills in determining the requirements of data networks and consequently defining, designing and implementing the operation and structure of a network system.

A0116 Global data networks, 5 cr

A0117 Data network project, 5 cr

A0165 Business Operations and Environments, 10 cr

The student is able to:

- analysoida toimintaympäristön rakennetta ja muutosvoimia sekä niihin liittyviä mahdollisuuksia ja haasteita
- analysoida yrityksen liiketoimintaa liiketoimintamallien ja ansaintalogiikan avulla
- analysoida erilaisia arvoketjuja ja -verkostoja
- erotella yrityksen liiketoiminnan perustoiminnot
- esittää asioita suullisesti

Contents of the study unit:

- liiketoimintaosaaminen
- toimintaympäristön rakenne ja keskeiset muutosvoimat
- verkostot ja arvoketjut
- liiketoimintamallit ja ansaintalogiikat
- yritystoiminta ja yrittäjyys
- viestintä ja vuorovaikutustaidot
- sopimus-, yhtiö- ja kilpailuoikeuden perusteet

Study unit description:

Opintojaksossa syntyvä osaaminen ilmenee kokonaisvaltaisena näkemyksenä liiketoimintaympäristöstä.

Osaaminen on yritystoiminnan kokonaisuuden jäsentämistä toimintojen kautta. Keskeistä on osata yleisellä tasolla eritellä, ketkä ovat yrityksen asiakkaita, miten asiakkaille luodaan arvoa, mikä on ansainnan mekanismi yrityksessä, mikä on yrityksen tapa toimia ja ketkä ovat sen kumppaneita.

Previous studies:

Ei ole.

A018 DEVELOPMENT OF CORE COMPETENCES IN THE FIELD, 60 cr**A0163 Implementing ICT Systems, 10 cr****The student is able to:**

- muodostaa järjestelmän suunnitteludokumenttien pohjalta tarkoituksenmukaisia ja käyttökelpoisia ohjelmia ja komponentteja
- ohjata tietojärjestelmäprojektia
- käyttää tietokannan suunnittelun perustekniikoita ja kuvaustapoja
- toteuttaa ja testata sovelluksen ohjelmat

Contents of the study unit:

- tietojärjestelmäprojektin ohjaus
- tietokannan suunnittelu ja toteutus
- sovelluksen tietokannan toteuttaminen
- järjestelmän ohjelmiston ja tietokannan testaus
- ohjelmointi

Study unit description:

Opintojaksossa luodaan valmius tietojärjestelmän toteutukseen ja testaukseen.

Previous studies:

Tietojärjestelmän määrittely ja suunnittelu –opintojakso tai vastaavat tiedot.

A0001 Designing and implementing a user interface, 5 cr**A0102 Managing Information Security, 5 cr****The student is able to:****A0111 Managing Information Security, 5 cr**

The student is able to:

- Apply the basic principles of information security
- Use risk management methods in developing information security
- Protect organisations from information risks
- Plan a comprehensive information risk management system for an organisation, applying technical and administrative measures
- Formulate continuity plans for information systems

Contents of the study unit:

- Basic concepts of information security
- Information security management system
- Information security standards
- Information security policy
- Information risk management
- Implementation of information security safeguards
- Personnel security and information security awareness
- Continuity planning
- Privacy protection and related legislation

Study unit description:

This study unit presents the central aspects of information security and principles of information security management. The themes include information risk management, information security management and development and practical implementation of information security in an organisation. The objective is to build competence to manage information risks of an organisation.

A0104 Information Security Technologies, 5 cr**The student is able to:**

- tunnistaa ja analysoida tietojärjestelmien haavoittuvuuksia
- arvioida ja soveltaa teknisiä tietoturvallisuusratkaisuja

Contents of the study unit:

- IP-verkkojen tietoturvallisuus
- salakirjoituksen perusteet ja sovellukset
- julkisen avaimen infrastruktuuri
- tiedon luottamuksellisuuden ja eheyden turvaaminen yksityisissä ja avoimissa verkoissa
- tietojärjestelmien ja sovellusten tietoturvallisuus
- tietojärjestelmien haavoittuvuuksien hallinta
- tietojärjestelmiin tunkeutumisen havaitseminen ja estäminen

Study unit description:

Opintojakso esittelee tietoturvallisuuden teknisiä ratkaisuja sekä niiden soveltamista. Keskeiset teemat ovat salakirjoitus ja sen sovellukset sekä tietoverkkojen turvallisuuskysymykset. Tavoitteena on oppia hyödyntämään teknisiä tietoturvaratkaisuja organisaation tietoturvallisuuden toteuttamisessa.

Previous studies:

Tietoturvallisuuden hallinta (tai vastaava)

A0112 Information Security Technologies, 5 cr**The student is able to:**

- understand the importance of information security technologies
- understand the significance of encryption and how to utilise its features

- identify and analyze vulnerabilities of information systems
- evaluate and apply technical information security measures

Contents of the study unit:

- Security of IP-networks
- Principles and applications of encryption
- Public Key Infrastructure
- Protection of confidentiality and integrity of information in private and public networks
- Information security of information systems and applications
- Information system vulnerability management
- Information system intrusion detection and prevention

Study unit description:

Study unit presents technical safeguards related to information security and application of those safeguards. Central themes include encryption and its applications, and information security issues related to information networks. Objective is to learn to utilize technical information security measures while implementing organisation's information security.

Previous studies:

Managing Information Security

A0106 Information Security Development Project I, 5 cr

The student is able to:

- Compose and describe a development process for information security based on an information security management methodology

Contents of the study unit:

- Conducting an information security development project

Study unit description:

Students work in teams to create an information security development plan for a target organisation.

Previous studies:

Managing Information Security

A0113 Information Security Development Project I, 5 cr

The student is able to:

Conducting an information security development project compose and describe a development process for information security based on a proper, applicable information security standard.

Contents of the study unit:

Compose and describe a development process for information security based on an information security management methodology.

Study unit description:

Students work in teams to create an information security development plan for a target organisation.

Previous studies:

Managing Information Security

A0167 Managing Business Performance, 10 cr

The student is able to:

- määrittää yrityksen kriittiset menestystekijät ja hahmottaa liiketoiminnan tavoitteiden strategialähtöisyyden
- jäsentää liiketoiminnan tavoitteita sekä taloudellisesta näkökulmasta, asiakkaan näkökulmasta, sisäisen toiminnan näkökulmasta että osaamisen ja sitoutumisen näkökulmasta
- tulkita ja hyödyntää yrityksen taloudellisia analyysejä
- tulkita yritystoimintaa sääteleviä normeja ja niiden merkitystä yrityksen toiminnan kannalta

Contents of the study unit:

- sisäisen ja ulkoisen laskentatoimen perusteet
- liiketoimintasuunnitelma
- liiketoiminnan eettisiä kysymyksiä
- tietojärjestelmät toiminnan ohjauksessa

Study unit description:

Opintojaksossa syntyvä osaaminen ilmenee tärkeimpien liiketoiminnan tavoitteiden ja mittareiden hallintana sekä toimintaa tukevien tietojärjestelmien hyödyntämisellä. Keskeistä on ymmärtää liiketoiminnan tavoitteiden strategialähtöisyys ja erilaisten analyysien rooli liiketoiminnan kokonaisuuden hallinnassa. Osaaminen ilmenee myös taitona arvioida liiketoiminnan eettisyyttä ja kehittää liiketoiminnan käytänteitä eettisesti, taloudellisesti, sosiaalisesti ja ekologisesti kestävämpään suuntaan.

Previous studies:

Yrityksen liiketoimintaympäristö ja liiketoimintamallit.

A0166 Leadership skills, 5 cr

The student is able to:

- Analysoida ja kehittää omaa johtamisosaamistaan
- Suunnitella, toteuttaa ja edistää työyhteisön toimintaa
- Soveltaa johtamisen pääperiaatteita työyhteisön ja verkoston toiminnassa

Contents of the study unit:

- Itsensä johtaminen ja johtamisen käytänteet
- Johtajuus ja johtaminen
- Organisaatiokulttuuri ja arvot
- Henkilöstöjohtaminen
- Työhyvinvointi
- Työlainsäädäntö ja työsuhteasiat

Study unit description:

Opiskelija osaa ratkaista johtamiseen liittyviä tilanteita organisaation ja yhteiskunnan muutoksissa.

A0153 Corporate Social Responsibility, 5 cr

The student is able to:

- Develop a wider approach to ethical questions and organisational values
- Combine CSR with business actions and strategy
- Discuss social responsibility issues

Contents of the study unit:

- Ethics and organisational values
- Sustainable guidelines on economic, environmental and social performance

- Responsible leadership
- Product safety
- Occupational safety and health
- Equality at work
- Diversity and multicultural issues
- Current issues on sustainability reporting and CSR standards

Study unit description:

This study unit introduces the students to the basic concept of corporate social responsibility. Organisational responsibility is seen from three viewpoints: economic, environmental and social responsibility. The critical thinking of the students is enhanced through discussions.

A0202 Swedish in the ICT field, 5 cr

The student is able to:

- toimia tietojenkäsittelyalan tehtävissä ruotsin kielellä
- vuorovaikutteisen asiakaslähtöisen viestinnän
- hankkia ja hyödyntää tietojenkäsittelyyn liittyvää tietoa

Contents of the study unit:

- keskeinen ict- ja yritysterminologia
- asiakaslähtöinen suullinen ja kirjallinen viestintä
- opiskelijan itsensä, koulutuksen ja työkokemuksen esittely

Study unit description:

Opintojaksossa opiskelija saavuttaa ruotsin kielessä vähintään eurooppalaisen viitekehyksen mukaisen taitotason B1.2.

Lisäksi hän saa valtionhallinnon kielitutkinnon mukaisen arvioinnin hyvä tai tyydyttävä suullisesta ja kirjallisesta kielitaidosta.

Previous studies:

ICT-asiiantuntijaksi kehittyminen -opintojakso tai vastaavat tiedot.

00634 Oral skills in Swedish, 0 cr

Study unit description:

This study unit is for evaluating oral skills in Swedish.

00635 Written skills in Swedish, 0 cr

Study unit description:

This study unit is for evaluating written skills in Swedish.

A0198 Organisational Communication, 5 cr

The student is able to:

- understand an organization as a communication network
- plan, implement and evaluate an organization's communications
- enhance personal communication skills in English

Contents of the study unit:

Basics of organizational communication Planning and implementing strategic and operative communication, Communication environments, stakeholders, channels and media, tools (including social media and new forms of

collaborative communication platforms) Measuring and evaluating communication, Enhancing personal communication skills
·&nbs

Study unit description:

ICT professionals are developing systems and networks to support business and effective communication within the organization and with its external stakeholders. During this study unit the students will understand an organization as a communication network and the need of supporting the organization's strategic activities with effective communication by using various platforms, channels or tools. Students will also be able to deepen their personal communication skills to meet the requirements of the modern business environment and online platforms.

A019 DEEPENING PROFESSIONAL COMPETENCE, 60 cr

A0132 Creating Innovation through Service Design, 10 cr

The student is able to:

- carry out an innovation project applying the newest existing knowledge and service innovation and design methods
- carry out creative problem solving and development of working methods
- know the prerequisites for profitable and customer-oriented operations
- work in a diversified project

Contents of the study unit:

- service innovations
- innovation process in practice
- SID methods
- planning, conducting and evaluating an innovation project

Study unit description:

The aim of the study unit is to acquaint the students with multidisciplinary knowledge in service innovation and design by carry out a service innovation project. It also covers studies of different service innovation methods and their implications for service innovation and design practice.

Previous studies:

Developing ICT Systems or equivalent knowledge.

A0013 Protecting Critical Infrastructure, 5 cr

The student is able to:

- Analysoida yhteiskunnan kannalta kriittisiä kohteita sekä niihin kohdistuvia uhkia
- Arvioida, keitä ovat kriittisen infrastruktuurin rakentajat, omistajat ja hallinnoijat
- Arvioida, keitä ovat kriittisen infrastruktuurin suojaamisen keinot ja toimijat
- Tarvittaessa johtaa kansalliseen elintärkeiden toimintojen turvaamisen strategiasta elementtejä oman organisaation turvallisuussuunnitteluun

Contents of the study unit:

- Kriittinen infrastruktuuri, määrittely ja rajaukset
- Kriittisen infrastruktuurin suojaamisen ulottuvuudet:
- Lainsäädäntö
- Kansallinen turvallisuus
- Kansainvälinen yhteistyö
- Kriittisen infrastruktuurin rakentajat, omistajat ja hallinnoijat
- o Uhkakuvasuunnittelu
- o Tilannekuvan ylläpito
- Käytännön ratkaisuja ja tekniikan suomia mahdollisuuksia kriittisen infrastruktuurin suojaamiseksi
- Kriittistä infrastruktuuria suojaavat toimijat

Study unit description:

Kriittinen infrastruktuuri tarkoittaa toimintoja ja rakenteita, jotka ovat yhteiskunnan jatkuvan toiminnan kannalta välttämättömiä. Opintojakson aikana opiskelija oppii ymmärtää mitä ovat yhteiskunnan kannalta kriittiset kohteet sekä niihin kohdistuvat uhat. Opintojaksolla perehdytään kriittisen infrastruktuurin suojaamisen keinoihin ja toimijoihin eri yhteiskunnallisissa tilanteissa.

Previous studies:

Teemat Ammatillisen kasvun käynnistyminen ja Alan ydinosaamisen kehittäminen

A0108 Information Security Development Project II, 5 cr**A0119 Information Security Development Project II, 5 cr****The student is able to:**

- Conducting an information security development project. The project focuses on technical protection of the target organisation's information systems and networks.

Contents of the study unit:

- Design and describe technical information security safeguards for information systems and networks
- Conduct a development process for information security based on a chosen information security management methodology

Study unit description:

Students work in teams to create an information security development plan for a target organisation. The content of the project is more technical in nature than in the study unit Information Security Development Project 1

Previous studies:

- Managing Information Security (or equivalent)
- Information Security Technologies (or equivalent)

A0142 Job placement in Information and Communication Technology I, 15 cr**A020 WORKPLACE DEVELOPMENT AND RENEWAL, 30 cr****A0143 Job placement in Information and Communication Technology II, 15 cr****00043 Thesis, 15 cr****The student is able to:**

- present well-grounded work development proposals
- conceptualise the phenomena of the workplace with a basis in research data
- use appropriate research and development methods for generating new data
- participate in development projects, working responsibly in a team with employers and other partners
- evaluate their own work and solutions critically
- manage the big picture, presenting their ideas logically and with justifications

Contents of the study unit:

- familiarisation with the thesis and development project process, and coming up with a subject
- thesis plan describing the background and objectives of the thesis, main data from previous research on the

subject, the research and development methods used and an implementation plan

- carrying out the work for the thesis
- reporting on and publishing the thesis
- maturity test

Study unit description:

Students learn to develop real work processes through research, producing new solutions in the form of products, operating models or work cultures.

047 LAUREA'S COMMON STUDIES, 0 cr

00202 Initial Test in English Skills, 0 cr

Study unit description:

At the beginning of their studies, all students who have English and/or Swedish qualifications on prior certificates required for studies at Laurea, or who have received previous instruction in English and/or Swedish take initial tests in these languages. The initial tests are the same for all fields of study and may only be taken once. Students who transfer between degrees within Laurea do not have to retake the test. The test is used to check the students' starting level before language studies begin. Students who fail the test must take preparatory studies in the language at the start of their studies. Having passed the preparatory studies, students obtain credits for inclusion in elective studies.

00203 Initial Test in Swedish Skills, 0 cr

Study unit description:

At the beginning of their studies, all students who have English and/or Swedish qualifications on prior certificates required for studies at Laurea, or who have received previous instruction in English and/or Swedish take initial tests in these languages. The initial tests are the same for all fields of study and may only be taken once. Students who transfer between degrees within Laurea do not have to retake the test. The test is used to check the students' starting level before language studies begin. Students who fail the test must take preparatory studies in the language at the start of their studies. Having passed the preparatory studies, students obtain credits for inclusion in elective studies.

01261 Preparatory Studies in English, 5 cr

The student is able to:

- englannin perusrakenteet
- käyttää opinnoissaan ja työelämässä tarvittavaa perussanastoa
- kirjallisen ja suullisen viestinnän perustaidot
- hyödyntää monipuolisesti erilaisia menetelmiä kielitaitonsa kehittämisessä

Contents of the study unit:

- englannin kielen keskeiset rakenteet
- sanaston laajentaminen
- suulliset ja kirjalliset oppimistehtävät
- erilaiset oppimisstrategiat

Study unit description:

Opiskelija harjoittaa viestintätaitojaan englannin kielessä kehittääkseen valmiuksiaan opintoihinsa ja työelämään.

Previous studies:

01260 Preparatory Studies in Swedish, 5 cr

The student is able to:

- ruotsin perusrakenteet
- käyttää opinnoissaan ja työelämässä tarvittavaa perussanastoa
- kirjallisen ja suullisen viestinnän perustaidot

hyödyntää monipuolisesti erilaisia menetelmiä kielitaitonsa kehittämisessä

Contents of the study unit:

- ruotsin/englannin kielen keskeiset rakenteet
- sanaston laajentaminen
- suulliset ja kirjalliset oppimistehtävät
- erilaiset oppimisstrategiat

Study unit description:

Opiskelija harjoittaa viestintätaitojaan ruotsin kielessä kehittääkseen valmiuksiaan opintoihinsa ja työelämään.

00636 Written skills in Finnish, 0 cr

00637 Oral skills in Finnish, 0 cr

125 ELECTIVE STUDIES, 0 cr

Description:

Students use elective studies to deepen and broaden their competence in various themes and generic competences. Students should choose study units to align the content of their studies with their own personal interests and career objectives.

Content:

Each curriculum contains a theme consisting of elective studies. In the students' personal study plans, the theme should be made up of the study units chosen by the student from Laurea's language studies, Laurea's shared studies or another degree programme's curriculum. Any studies completed at another higher education institution (university of applied sciences, university, Online University of Applied Sciences, foreign institution) that cannot be recognised for the degree programme but that the student wishes to include in the degree should be classified under this theme. The number of credits from elective studies can be set separately for each degree programme, taking into account recommendations for the field of study. The aim is to have at least 15 cr of elective studies in each degree programme